In the Claims:

1. (Currently Amended) An image sensing device comprising:

a plurality of photosensors arranged in at least one array, such that each of the photosensors converts incident light into an output signal, the photosensors and their respective output signals being divided into a plurality of color channels;

a filter associated with each of the photosensors, the filters selecting light within predetermined spectral bands for conversion by the photosensors into the output signals, one color channel indicative of one color and having an associated spectral bandwidth comprising at least two color sub-channels and the filters associated with the photosensors of the at least two color sub-channels having spectral bands within the spectral bandwidth of the one color channel wherein one of the spectral bands is narrower in bandwidth than another of the spectral bands; and

circuitry coupled with the photosensors and configured to interpolate the output signal of one of the photosensors of one of the two color sub-channels using the output signal of another of the photosensors of another of the two color sub-channels.

2. (Original) The image sensing device of claim 1 wherein the photosensors are arranged in a single array and the filters associated with each photosensor are arranged in a mosaic of filters located over the photosensor array.

3. (Original) The image sensing device of claim 2 wherein the mosaic of filters is arranged in a Bayer pattern.

4. (Original) The image-sensing device of claim 1 wherein a beam splitter is provided which splits incident light into a plurality of paths and a separate filter/photosensor array combination is located in each path, there being a separate path and respective filter/photosensor array combination provided for each color channel or sub-channel.

5. (Original) The image-sensing device of claim 1 wherein a beam splitter is provided which splits incident light into a plurality of paths and a separate filter/photosensor array combination is located in each path, there being a separate path and respective filter/photsensor array combination provided for each color channel, and whereby the at least one of the color channels that is further divided into a plurality of sub-channels is represented by a single filter/photosensor array combination wherein a filter associated with each photosensor of the plurality of sub-channels is arranged in a mosaic of filters located over the photosensor array.

6. (Original) The image sensing device of claim 1 wherein the color channels comprise red, green and blue color channels and the green color channel is divided into a plurality of sub-channels, a first one of which uses a first green filter type and a second of which uses a second green filter type having a spectral band which is narrower in bandwidth than and overlapping with the spectral band of first green filter type.

7. (Original) The image sensing device of claim 6 wherein the first green sub-channel uses a Kodak.TM. Wratten.TM. #58 (green tricolor) filter.

8. (Original) The image sensing device of claim 7 wherein the second green sub-channel uses a Kodak.TM. Wratten.TM. #99 (green) filter.

9. (Original) The image sensing device of claim 6 wherein the red channel is divided into a plurality of sub-channels, a first one of which uses a first red filter type and a second of which uses a second red filter type having a spectral band which is narrower in bandwidth than and overlapping with the spectral band of the first red filter type.

10. (Original) The image sensing device of claim 6 wherein the blue channel is divided into a plurality of sub-channels, a first one of which uses a first blue filter type and a second of which uses a second blue filter type having a spectral band which is narrower in bandwidth than and overlapping with the spectral band of the first blue filter type.

11. (Original) The image sensing device of claim 1 wherein the color channels comprise cyan, yellow, magenta and green color channels and the green channel is divided into a plurality of sub-channels, a first one of which uses a first green filter type and a second of which uses a second green filter type having a spectral band which is narrower in bandwidth than and overlapping with the spectral band of first green filter type.

12. (Currently Amended) A method of capturing an electronic representation of an image comprising the steps of:

a) projecting the image onto a sensor device comprising a plurality of photosensors, divided into a plurality of color channels;

b) restricting the wavelengths of light incident on each photosensor to a spectral band defining a color associated with the color channel of the respective photosensor;

c) combining the outputs of the photosensors to generate the electronic representation of the image, wherein one color channel indicative of one color and having an associated spectral bandwidth is divided into at least two color sub-channels having filters associated with the photosensors of these at least two color sub-channels, the filters having spectral bands within the spectral bandwidth of the one color channel wherein one of the spectral bands is narrower in bandwidth than another of the spectral bands within the spectral bandwidth of the one color channel, and the combining comprises combining the output of one of the photosensors of one of the at least two color sub-channels with the output of another of the photosensors of another of the at least two color sub-channels.

13. (Original) The method of claim 12 wherein individual photosensors of the different color channels are intermixed in a single photosensor array, and the step of restricting the wavelengths of light incident on each photosensor comprises positioning an associated filter over the respective photosensor, whereby light falling on the photosensor passes through the associated filter, the filters being arranged as a mosaic of filter elements with a filter element located over each photosensor in the array.

14. (Original) The method of claim 13 wherein the mosaic of filter elements is arranged in a Bayer pattern.

15. (Original) The method of claim 14 wherein the mosaic of filter elements comprises red, green and blue elements associated with red green and blue color channels and the green color channel comprises two green sub-channels.

16. (Original) The method of claim 15 wherein the Bayer pattern comprises alternating rows of filters a first of which includes red filters and green filters of the first green sub-channel and the second of which includes blue filters and green filters of the second green sub-channel.

17. (Original) The method of claim 12 wherein a separate photosensor array is associated with each color channel or sub-channel and the image is projected onto the photosensor arrays via a beam splitter which splits incident light into a plurality of paths corresponding to the number of photosensor arrays and each photosensor array having an associated filter which limits the wavelengths of light falling on the respective photosensor array to those of the spectral band of respective color channel or sub-channel.

18. (Original) The method of claim 12 wherein a separate photosensor array is associated with each color channel and the image is projected onto the photosensor arrays via a beam splitter which splits incident light into a plurality of paths corresponding to the number of photosensor arrays, each photosensor array having an associated filter or filters which limits the wavelengths of light falling on the respective photosensor array to those of the respective color channel, and wherein at least one of the color channels is further divided into a plurality of sub-channels represented by a single filter/photosensor array combination and a filter associated with each photosensor of the plurality of sub-channels is arranged in a mosaic of filters located over the photosensor array.

19. (Original) The method of claim 12 wherein the colors associated with the respective color channels comprise red, green and blue and the green color channel is divided into a plurality of sub-channels, a first one of which uses a green filter type having a first green spectral band and a second of which uses a green filter type having a second green spectral band which is narrower in bandwidth than and overlapping with the first green spectral band.

20. (Original) The method of claim 19, wherein the first green sub-channel uses a Kodak.TM. Wratten.TM. #58 (green tricolor) filter.

21. (Original) The method of claim 20 wherein the second sub-channel uses a Kodak.TM. Wratten.TM. #99 (green) filter.

22. (Original) The method of claim 19 wherein the red color channel is divided into a plurality of sub-channels, a first one of which uses a red filter type having a first red spectral band and a second of which uses a red filter type having a second red spectral band which is narrower in bandwidth than and overlapping with the first red spectral band.

23. (Original) The method of claim 19 wherein the blue color channel is divided into a plurality of sub-channels, a first one of which uses a blue filter type having a first blue spectral band and a second of which uses a blue filter type having a second blue spectral band which is narrower in bandwidth than and overlapping with the first blue spectral band.

24. (Original) The method of claim 12 wherein the colors associated with the respective color channels comprise cyan, yellow, magenta and green and the green color channel is divided into a plurality of sub-channels, a first one of which uses a green filter type having a first green spectral band and a second of which uses a green filter type having a second green spectral band which is narrower in bandwidth than and overlapping with the first green spectral band.

25. (New) The image sensing device of claim 1 wherein the circuitry is configured to interpolate the output signal of the one of the photosensors using only the output signal of the another of the photosensors.

26. (New) The image sensing device of claim 1 wherein the circuitry is configured to interpolate the output signal prior to any color correction processing of the output signals.

27. (New) The image sensing device of claim 1 wherein the filters are configured to cause saturation of respective ones of the one and another photosensors responsive to reception of different amounts of the incident light of the one color by the respective ones of the one and another photosensors.

28. (New) The image sensing device of claim 27 wherein the filters are configured to cause registration of the incident light of the one color above a noise floor by respective ones of the one and another photosensors responsive to reception of different amounts of the incident light of the one color by the respective ones of the one and another photosensors.

29. (New) The method of claim 12 further comprising interpolating the output of the one of the photosensors using only the output of the another of the photosensors.

30. (New) The method of claim 12 wherein the combining provides the combined signal corresponding to one of five different output areas responsive to reception of the light of the one color by the one and another photosensors including: a first area wherein the outputs of the one and another photosensors are unregistrable below a noise floor; a second area wherein only one of the outputs of the one and another photosensors is unregistrable below the noise floor; a third area wherein both of the outputs of the one and another photosensors are above the noise floor and below a saturation level; a fourth area wherein only one of the outputs of the one and another photosensors is below a saturation level; and a fifth area wherein both of the outputs of the one and another photosensors are below the saturation level.

31. (New) The method of claim 12 wherein the combining the one and another outputs of the one and another photosensors produces a combined signal, and wherein the one and another outputs of the one and another photosensors are the only outputs combined to produce the combined signal.

32. (New) The method of claim 31 wherein the combining comprises combining prior to any color correction processing of the outputs.